Social footprints

McElroy, M.

CHAPTER 5

ILLUSTRATIONS OF THE SOCIAL FOOTPRINT METHOD

5.1 INTRODUCTION

This chapter contains two illustrations of the Social Footprint Method (SFM) applied according to the procedure set forth in Chapter 4. Each case involves a measurement of social sustainability performance relative to an *external* area of impact (i.e., a social condition not confined to the organization itself), for which the responsible population consists of all humans on earth. Each case is further described below.

5.2 WAL-MART STORES, INC.

5.2.1 Introduction

Wal-Mart Stores, Inc. (Wal-Mart) is the largest company in the world with annual sales of $345 billion. It is headquartered in the United States in Bentonville, Arkansas and employs over 1.9 million people worldwide. In total, Wal-Mart operates more than 7,000 general merchandise stores worldwide: 4,000 in the U.S. and 3,000 elsewhere.

In November, 2007, Wal-Mart issued its first ever sustainability report. Its format was a self-styled one, focusing on activities and impacts in three areas: community, associates (employees), and the environment. Like most companies that prepare sustainability reports, Wal-Mart measured and expressed its performance mostly in terms of top-line key performance indicators (KPIs) - performance as measured against standards, by contrast, was largely missing.

Also missing from Wal-Mart's sustainability report was any discussion of its impacts on helping to achieve the UN's Millennium Development Goals (MDGs). Instead, Wal-Mart chose to focus mainly on its community-level philanthropy in the vicinity of its 7,000 stores, the size of which is substantial. This and other information contained in Wal-Mart's sustainability report, in addition to data reported in several of its annual financial reports, constituted the sum total of the data we examined in this case. Before continuing with our discussion of the case, therefore, it is important to acknowledge that the results we report on the pages below were based exclusively from data gathered from only those sources, and no others. This, in part, was done to help simplify the case. The results we report, however, could very well be inaccurate, since other sources of data or information regarding Wal-Mart's impacts on helping to achieve the MDGs, if any, might exist.

Also important to this case is the fact that it was carried out without any direct participation or involvement from Wal-Mart, whatsoever. All of the data required to calculate the company's performance was gathered from Wal-Mart corporate reports, as noted above, and also from various government and NGO sources, including the United Nations, the Organization for Economic Co-operation and Development (OECD), and the U.S. Census Bureau. This shows that Social Footprint analyses can be performed from the sidelines, so to speak, and need not always involve the active participation of the organizations under study.

5.2.2 Discussion of SFM steps taken

This illustration of the Social Footprint Method follows the five steps outlined in Chapter 4.

5.2.2.1 Step 1: Define boundaries

In this case, we opted to confine our analysis of Wal-Mart's social sustainability performance to only its U.S. operations. Thus, the operations we considered included the company's headquarters in Bentonville, Arkansas and its approximately 4,000 stores in the U.S. This is consistent with the boundaries reflected in

Wal-Mart's U.S.-based financial reports for the years included in our analysis, the content of which served as a source for the employee headcount figures we used.

In terms of temporal boundaries, we took an annual perspective, and calculated Wal-Mart's social sustainability performance for each of three years: 2002, 2003, and 2004.

5.2.2.2 Step 2: Select specific area(s) of impact (AOIs)

As earlier noted, this case involved a study of Wal-Mart's impacts on helping to achieve the UN's Millennium Development Goals (MDGs). All eight MDGs and the corresponding sixteen "targets" were considered (see Section 4.6.1.3.2). We made this choice because one measure of a company's social sustainability performance is the impact it has at a global level of analysis, not just a local one, and the MDGs arguably cover that issue quite well. As the largest company in the world, and with international operations, this seemed like a particularly appropriate question to be asking about Wal-Mart. This case, therefore, examined the company's impacts on an *external* set of social conditions in the world (see Appendix B), as manifested (or not) in the production and/or maintenance of related anthro capital.

5.2.2.3 Step 3: Specify and construct denominator

In Section 4.6.1.3.7 (Summary of Step 3), we decomposed Step 3 into eight Substeps. In this section, we will adhere to that outline as we describe the process we followed in specifying Wal-Mart's denominator.

Substep 3.1: This Substep required us to establish a causal theory for the AOI selected in Step 2, and distinguish between cause and effect indicators (or variables) within it. The causal theory we relied on in this case was the one provided by the UN as the basis of its MDG program. That program rests on a commitment to advancing human well-being on earth, and establishes eight major goals for doing so by 2015 (again, see Section 4.6.1.3.2). Regarding the importance of

the MDGs to human well-being, the UN states its position as follows (UNMP, 2005, p. 2):

> "As the most broadly supported, comprehensive, and specific poverty reduction targets the world has ever established, the Millennium Development Goals are too important to fail. For the international political system, they are the fulcrum on which development policy is based. For the billion-plus people living in extreme poverty, they represent the means to a productive life. For everyone on Earth, they are a linchpin to the quest for a more secure and peaceful world."

In order to achieve the Goals, the UN believes that investments must be made in several broad programs at the country level of analysis (Ibid., p. 3). Most important to the achievement and maintenance of human well-being is the mitigation, and eventual elimination, of extreme poverty. Indeed, extreme poverty, according to the UN's causal theory, is at the root of all human misery. The UN elaborates as follows (Ibid., pp. 4 and 6):

> "For the billion-plus people still living in extreme poverty, the Millennium Development Goals are a life-and-death issue. Extreme poverty can be defined as 'poverty that kills,' depriving individuals of the means to stay alive in the face of hunger, disease, and environmental hazards. When individuals suffer from extreme poverty and lack the meager income needed even to cover basic needs, a single episode of disease, or a drought, or a pest that destroys a harvest can be the difference between life and death. In households suffering from extreme poverty, life expectancy is often around half that in the high-income world, 40 years instead of 80. It is common that of every 1,000 children born, more than 100 die before their fifth birthday, compared with fewer than 10 in the high-income world. An infant born in Sub-Saharan Africa today has only a one-in-three chance of surviving to age 65. For people living in extreme poverty, the Goals are ends unto themselves, directly representing the ambition for a longer, healthier, and more fulfilling life. But they are also 'capital inputs' - the means to a productive life, to economic growth, and to further development in the future[.]"

Here, in the passage above, the UN's causal theory is essentially revealed. Assuming we can regard the phrase "…to a productive life, to economic growth,

and to further development in the future" as a reference to *human well-being* - and we think we can - then it should be clear that the UN sees the achievement of its eight MDGs, and especially the mitigation of extreme poverty, as a means of achieving human well-being. Moreover, it refers to the Goals (in their achieved state) as "capital inputs" (to human well-being).

From our perspective, there is a difference between cause (or causal) indicators and effect indicators (see Section 4.6.1.3.2, and Figure 4.1). What the UN is referring to in its MDGs and the sixteen related 'targets' are effect indicators, consisting of desired or intended outcomes in human and social states of affairs. In order to achieve such outcomes, the UN is calling for investments in a variety of social programs, all of which meet our definition of one or more types of anthro capital (see Section 3.4.3.1). It is the existence and quality of such anthro capital that comprises the causal indicators of interest to us and the UN, insofar as they precipitate and support human well-being. By investing, therefore, in the production and/or maintenance of anthro capital in specific areas (i.e., both geographically and by type), human well-being can be greatly improved. The UN argues accordingly for making such investments as follows (Ibid., pp. 7-8):

> "At a deeper level, achieving the Goals is about making core investments in infrastructure and human capital that enable poor people to join the global economy, while empowering poor people with the economic, political, and social rights that will enable them to make full use of infrastructure and human capital, wherever they choose to live[.]"

In order to achieve the Goals, the UN has committed to several specific areas of investment, in particular. They explain as follows (Ibid., p. 64):

> "For all developing countries, but especially those stuck in a poverty trap, we recommend that the MDG-based frameworks to meet the 2015 targets […] should be designed around seven broad 'clusters' of public investments and policies:
>
> 1. Promoting vibrant rural communities, by increasing food productivity of smallholder farmers, raising rural incomes, and expanding rural access to essential public services and infrastructure.

2. Promoting vibrant urban areas, by encouraging job creation in internationally competitive manufactures and services, upgrading slums, and providing alternatives to slum formation.
3. Ensuring universal access to essential health services in a well functioning health system.
4. Ensuring universal enrollment and completion of primary education and greatly expanded access to post-primary and higher education.
5. Overcoming pervasive gender bias.
6. Improving environmental management.
7. Building national capacities in science, technology, and innovation."

From this, we can summarize the causal theory underlying the UN's MDG program as one which asserts that by investing in anthro capital in the seven broad areas listed above, the world will be able to achieve its eight MDG goals for human and social well-being. This theory is largely consistent with the CTA approach to sustainability so fundamental to the SFM (see Section 3.4). It also provided the basis for the specification of Wal-Mart's denominator in this case, since it establishes a theory-based global norm of behavior (i.e., to invest in seven areas of anthro capital in order to improve human and social well-being) that can, in turn, be used as a standard of performance in assessing the social sustainability impacts of an organization.

Substep 3.2: The next Substep in Step 3 of the SFM required that we determine the anthro capital aspects, or components, of the causal variables identified in Substep 3.1, which in turn can be used as a basis for specifying denominator (and numerator) values. Here we need only refer back to the seven areas of investment already identified in our discussion the UN's causal theory above. Contributions made in any one or more of those areas, and in the countries identified by the UN, constitute investments made towards building precisely the kind of anthro capital required to achieve the MDGs (i.e., according to the theory).

To be even more specific, each of the seven areas of investment cited by the UN in its causal theory can be expressed in terms of its anthro capital dimensions: human, social, and constructed. With such a conceptual framework in hand, any investment identified as a candidate for receiving credit towards achieving the MDGs could simply be judged in light of it. Alternatively, one could start with

the candidates, and ask if a case can be made that they, in fact, contribute towards building one or more of the types of anthro capital encompassed by the seven areas.

This latter approach is, in fact, the one we took, since there was no indication, much less claims to the effect, that Wal-Mart had made any such contributions towards achieving the MDGs in the years we studied. Thus, there was little need or incentive to develop a comprehensive anthro capital interpretation of the seven areas of investment. On the other hand, Wal-Mart does pay federal taxes in the U.S., and some proportion of all taxes paid to the U.S. does go to the UN in the form of *Official Development Assistance* (ODA). In an indirect sense, then, we can say that Wal-Mart - and indeed any company that pays federal taxes in the U.S. - does make annual contributions towards achieving the MDGs, in the sense that some proportion of their taxes paid to the U.S. is sent by the government to the UN to help fund their programs.

Here we can also say, by definition, that monetary contributions made to the UN necessarily go towards achieving the MDGs, since everything the UN does now is MDG-related. Thus, unlike cases where contributions are made outside of UN channels (i.e., where the connections to achieving the MDGs are not so certain), monetary contributions made either directly to the UN or indirectly through federal taxes can always be counted on to go towards achievement of the MDGs. In the Wal-Mart case, these were the only kinds of MDG contributions we found (i.e., indirect contributions made via U.S. tax payments), and so our approach to determining the anthro capital aspects, or components, of the causal variables identified in Substep 3.1 was chosen accordingly.

Substep 3.3: This Substep required that we research, select, and/or develop the metrics required to quantitatively express the denominator (and numerator) for the AOI selected in Step 2, and for the anthro capital components identified in Substep 3.2. Because of the fact that the UN itself expresses the input, or contributions, required to achieve the MDGs mainly in monetary terms, we adopted monetary units as the preferred metric for constructing our denominator. Here it should be clear that such monetary units (i.e., money) was used as a proxy for what are otherwise basic units of anthro capital. Instead of measuring inputs in terms of, say, healthcare clinics to be built, the UN - and therefore we, too - has opted to express such inputs in terms of their monetary equivalents.

Table 5.1a Wal-Mart (MDG-related) social sustainability analysis

	2002	2003	2004
number of 'people feet' at Wal-Mart			
number of U.S.-based employees (millions)[1]	1.1	1.1	1.2
average annual proportion of employee time spent working per year (estimated)	0.20	0.20	0.20
number of people-feet (PF) at Wal-Mart in U.S. (millions)	0.22	0.22	0.24
analysis of Wal-Mart per-capita 'official development assistance' (ODA): the denominator			
ODA (as % of GNI) pledged by most OECD countries (incl. U.S.) in 1970 and 2002[2]	0.70%	0.70%	0.70%
monetary value of U.S. ODA if @ .7% GNI (millions)	$71,562	$76,160	$81,138
ODA (as % of GNI) actually contributed by U.S.[3]	0.13%	0.15%	0.17%
monetary value of ODA contributions actually made by U.S. (millions)[3]	$13,290	$16,320	$19,705
U.S. population (millions)[4]	288.0	290.9	293.7
U.S. per-capita/people foot share of ODA if @ .7% GNI (the denominator)	$248.49	$261.85	$276.30
analysis of Wal-Mart per-capita 'official development assistance' (ODA): the numerator			
direct cash contributions by Wal-Mart to development of MDG anthro capital[5]	0.00	0.00	0.00
direct in-kind contributions by Wal-Mart to development MDG anthro capital[5]	0.00	0.00	0.00
direct costs incurred by Wal-Mart in development of MDG anthro capital[5]	0.00	0.00	0.00
taxes paid to U.S. (millions)[5]	$2,941	$3,299	$4,039
monetary value of total U.S. budget outlays (millions)[6]	$2,011,153	$2,160,117	$2,293,006
percentage of U.S. budget outlays spent on ODA	0.6608%	0.7555%	0.8594%
amount of U.S. taxes paid per Wal-Mart PF going to actual ODA contributions by U.S.	$88.34	$113.29	$144.62
total Wal-Mart per-capita (people feet) contributions going to U.S. ODA (the numerator)	$88.34	$113.29	$144.62

Table 5.1b Wal-Mart (MDG-related) social sustainability analysis

	2002	2003	2004
Wal-Mart's social footprint (MDG-related only)			
U.S. per-capita/people foot share of ODA if @ .7% GNI (denominator)	$248.49	$261.85	$276.30
total Wal-Mart per-capita (people feet) contributions going to U.S. ODA (numerator)	$88.34	$113.29	$144.62
size of per-capita (people feet) gap in Wal-Mart contributions to U.S. ODA	$160.15	$148.56	$131.68
societal quotient ('social footprint')[7]	0.36	0.43	0.52

[1] estimated from analysis of Wal-Mart Annual Reports (2002 - 2004)

[2] 1970: UN General Assembly Resolution; 2002: Monterey Consensus (OECD)

[3] source: OECD

[4] source: U.S. Census Bureau

[5] from analysis of Wal-Mart Annual Reports (2004 and 2005)

[6] source: Budget of the U.S. Gov't 2007, historical tables, office of the president

[7] **numerator divided by denominator: ≥1 = sustainable; <1 = unsustainable**

Thus, our entire Social Footprint calculation was performed using monetary values in both the numerator and denominator for each year of analysis (see Tables 5.1a and 5.1b).

Substep 3.4: This Substep required that in cases where a proxy unit of measurement, or metric, is to be used in the denominator, we verify that it actually stands for contributions that would otherwise take the form of real units of anthro capital. Since we did use monetary units as a proxy for anthro capital in this case, this guideline applied. We satisfied this requirement, in response, by referring to the MDG program itself, which specifies inputs required to create and maintain anthro capital in monetary terms. Thus, we simply adopted a proxy that had already been established and calibrated by the UN as a reliable substitute for actual units of anthro capital specified in its programs.

Substep 3.5: This Substep required us to determine whether or not the responsibility for impacts on the AOI selected in Step 2 rested solely with the organization under study, or instead encompassed a broader population. If the latter, it might be necessary to calculate the size of the organization in terms of our *People Foot* metric, especially when computing Social Footprints for the organization as a whole; if the former, we would need to allocate the AOI's entire burden share to the organization in the denominator.

In this case, the responsible population for achieving the MDGs was by no means limited to Wal-Mart's employees. Rather, it consisted of the population of humans inhabiting the countries identified by the UN - and *in agreement with* the UN - who are to serve as the primary funders of the MDG program and its operations. This, of course, includes the United States, which has repeatedly affirmed its commitment to contribute approximately .7 percent of its Gross National Income (GNI) to the UN as Official Development Assistance (ODA) each year. Assuming an equal share of responsibility among all U.S. citizens for meeting this commitment (an assumption we made for simplicity's sake), the per capita burden share for Americans to help achieve the MDGs in the years 2002, 2003, and 2004 works out to $248.49, $261.85, and $276.30, respectively, as indicated in the *Denominator* section of the spreadsheet shown in Table 5.1a.

In this case, then, the responsible population for the prescribed impact on the AOI identified in Step 2 was all humans inhabiting the countries that have made commitments to the UN to help fund the MDGs. It should be clear, however, that

the per capita burden share for people living inside those countries is not the same throughout the world, but *may be* the same *within* individual countries, given the manner in which country-level commitments are made as a percentage of GNI. With all of this in mind, we had a solid basis for defining an equal, per capita burden share of what it would take to fully fund the MDGs at a national (i.e., U.S.) level of analysis. This, however, still left open the question of how to specify an organizational share in the U.S. for Wal-Mart - or, for that matter, any other company in the U.S. That was our next task.

In order to allocate the MDG-related burden share to an organization, such as Wal-Mart, we first had to be certain that the organizational population of interest to us lay completely within the responsible population we had identified. Otherwise, we risked attributing normative obligations to organization members they did not have, because such individuals might actually fall outside of the responsible population we had identified. In this case, the responsible population we had identified was all U.S. citizens, although we had also said that all countries with commitments to the UN comprise the broader responsible population for achieving the MDGs. But since the per capita monetary commitment differs for each such country, we opted to cast our analysis only in terms of *performance measured against American commitments only.* And since we were only interested in evaluating the social sustainability performance of Wal-Mart's U.S.-based operations, this worked well for us, since we could indeed say that the organizational population of interest to us lay completely within the responsible population we had identified (i.e., all U.S.-based Wal-Mart employees are members of the American population, or so we assumed).

Substep 3.6: This Substep required us to form competing knowledge claims as to what the organization's proportionate burden share should be to create and/or maintain sufficient levels of anthro capital (i.e., as required to ensure human well-being in the AOI of interest). We should have then selected the knowledge claim that best survived testing and evaluation through knowledge claim evaluation.

Because of the purely illustrative and experimental purpose of the Wal-Mart MDG case, we did not work this issue too hard. While it was clear that the responsible population for achieving the MDGs certainly includes, but goes beyond, the Wal-Mart employee population, we did not test and evaluate too rigorously the many possible claims about which populations, in particular, should be

viewed as actually responsible for achieving the MDGs. For the sake of simplicity, we decided to treat all humans on earth as responsible, and our quotients were calculated accordingly.

That said, there are clearly problems with the choice we made. First, the responsible population for achieving the MDGs should probably not include the very targets or beneficiaries of the program itself, such as those afflicted by extreme poverty, disease, poor living conditions, etc., and whose desperate conditions in life arguably disqualify them as prospective donors. And even within designated donor countries where conditions are relatively good, not everyone there should be regarded as qualified donors, either. Infants living within the United States, for example, can hardly be expected to have, much less live up to, a moral obligation to contribute to the MDGs. The same could be said for the poor, indigent, mentally ill, imprisoned, and otherwise ill-equipped, handicapped, or hampered members of society whose conditions simply prevent them from acting in any sort of morally proactive way. So it may be that the more defensible claim as to who the responsible population is, or ought to be, for achieving the MDGs, both globally and within a single country, is much smaller than we said - after all, *ought implies can* (see Section 2.3.3.3). In that case, then, the per capita burden share for use in the denominator of our quotient would be much higher than we said, thereby rendering the results of our analysis as largely understated, so to speak.

From this discussion, it should be clear that any decisions made in Substep 3.5 above should be regarded as tentative until such time as Substep 3.6 has been completed. Indeed, whereas Substep 3.5 might clearly result in the view that the responsible population for a particular AOI under study extends beyond the boundaries of an organization, determining just how far it goes, and why, requires further analysis and deliberation. Thus, it is the combination of Substeps 3.5 and 3.6 (not just 3.5) that results in the determination of the responsible population, the answer for which, then and only then, provides a basis for specifying the denominator.

Substep 3.7: This Substep required us to finally populate the denominator with a quantitative value in accordance with decisions reached in Substeps 3.1 - 3.6. As shown in Table 5.1b, the per capita (i.e., per People Foot) values used for years 2002, 2003, and 2004 at Wal-Mart were $248.49, $261.85, and $276.30, respectively.

Substep 3.8: The last Substep in Step 3 required us to determine which of the two types of binary performance scales should be used for plotting and interpreting the results of the quotient calculation. As we pointed out in Chapter 4, this will logically follow from the nature of the denominator chosen for use in the analysis. This is because in some cases the denominator represents a maximum, or not-to-exceed, expectation, whereas in others it represents a minimum, or not-to-fall-below expectation (see Sections 3.5.3.2 and 3.5.3.3, respectively).

In the Wal-Mart case, the values expressed in the denominators consisted of minimum contribution or donation levels required - if generalized across the total human population on earth - to achieve the MDGs. Thus, the binary scale we chose is one on which scores of greater than or equal to one (≥ 1.0) were interpreted as sustainable, and scores of less than one (<1.0) were interpreted as unsustainable. This is consistent with most cases where the SFM has been applied, since anthro capital is anthropogenic and can usually be produced at will. Natural capital, by contrast is not anthropogenic, and therefore imposes limits, or maximums on moral agents, not minimums.

5.2.2.4 Step 4: Specify and construct numerator

Step 4 required us to measure Wal-Mart's actual impacts on helping to achieve the MDGs in the years we considered, and to then populate the numerator of the sustainability quotients involved with the resulting data. Here we considered four possible forms, or means, of making contributions to the MDGs:

1. Direct monetary contributions by Wal-Mart to the UN or to third parties involved in implementing related programs,
2. Direct in-kind contributions by Wal-Mart to the UN or third parties involved in implementing related programs,
3. Other direct costs incurred by Wal-Mart in helping to implement related programs, and
4. Indirect monetary contributions made by Wal-Mart towards achieving the MDGs by way of taxes paid to the U.S. government (see the *Numerator* section of the spreadsheet shown in Table 5.1a).

In order to determine whether, and to what extent, Wal-Mart made contributions towards achieving the MDGs in any of the four forms we identified, we reviewed

a number of documents published by Wal-Mart in the years involved, including their annual reports and website pages pertaining to corporate social responsibility, philanthropy, and sustainability. What we found was that only the fourth category (taxes paid to the U.S. government) revealed contributions made to the UN by Wal-Mart, a type of contribution that all companies make by virtue of how U.S. taxes are applied. No other contributions towards achieving the MDGs were made by Wal-Mart in the years we studied.

In order to populate the numerator of Wal-Mart's MDG-related quotients, we were then required to make a People Foot calculation. This is because the denominator had already been expressed in the form of a per capita value (i.e., the per capita burden share of what it would take to fully fund the MDGs in the years we considered). Thus, what we needed in the numerator was a measure of per capita contributions actually made in the same years. But since Wal-Mart employees only spend part of their lives at work, we could not use the total employee headcount as a basis for making that calculation. Instead, we had to adjust the headcount there in order to reflect the proportion of total time people spend working at Wal-Mart compared to the other parts of their lives.

To make this calculation, we developed an estimate of how much time people spend working at Wal-Mart. This part of our analysis was not based on any direct evidence or data gathered from Wal-Mart publications, but instead was based on general knowledge of how much time people usually spend working in full-time situations. Assuming a forty-hour workweek and fifty-two weeks in a year, a full-time employee at any company will work, and be paid for, 2,080 hours each year, including paid vacations, days off, etc. This works out to about 24 percent of total time spent at work (2,080 hours/8,760 hours). For 2004, we used that figure; for 2002 and 2003, we used 22 percent, reflecting the possibility that not all of Wal-Mart's employees are necessarily full-time workers. This we did for the sake of variety, and not on the basis of any real data.

Given our working assumptions for employee time spent working at Wal-Mart, we then took actual employee headcounts and adjusted them by the same factors. This gave us adjusted People Feet headcounts at Wal-Mart for the years 2002, 2003, and 2004 of 220,000, 220,000, and 240,000, respectively. These figures were then divided into the total value of contributions made by Wal-Mart towards achieving the MDGs in the same years, and the results were then used to populate the company's numerators.

In order to do this, of course, we had to determine what proportion of Wal-Mart's taxes paid to the U.S. could be counted on as going towards the MDGs. This was done by ascertaining actual contributions made by the U.S. relative to total government outlays for the same years. If, for example, in 2002, the government spent 0.6608 percent of its total outlays on ODA to the UN, which it did (see Table 5.1a), then we assumed that the same proportion of taxes paid by Wal-Mart to the U.S. government could similarly be counted as having gone towards the MDGs. The resulting figures were then divided by Wal-Mart's People Foot size for each year, and the results were used as our numerators: $88.34, $113.29, and $144.62 for the years 2002, 2003, and 2004, respectively (again, see Table 5.1a).

5.2.2.5 Step 5: Compute the quotient score

The final Step in the SFM required us to simply compute the quotient scores for Wal-Mart using the denominator values we produced in Step 3 and the numerator values we produced in Step 4. The resulting scores for Wal-Mart were 0.36, 0.43, and 0.52 for the years 2002, 2003, and 2004, respectively. Thus, according to the binary scale decision we made in Substep 3.8, Wal-Mart's social sustainability performance, relative to its impacts on achieving the MDGs in the years we examined, was unsustainable (see Table 5.1b). This is because according to the logic of that scale, all patterns of activity that lead to scores of less than one (<1.0) are, by definition, unsustainable.

In terms of intended audience, the report we prepared for Wal-Mart, of course, was for our own development purposes. We had not been engaged by Wal-Mart to develop the report, nor were there any other consumers or recipients of the report envisioned when we created it. The format we used, however, was intended to be typical of that which might be appropriate for at least internal use at Wal-Mart. Here we were thinking of a sustainability manager, for example, who might want to measure and track Wal-Mart's impacts on the MDGs, both before and after interventions are made in order to manage such impacts. In that regard, the report could serve as a kind of dashboard that managers could use to produce information about the company's actual impacts in the world.

Regarding our decision to cast Wal-Mart's quotients in terms of per capita performance as opposed to organizational performance, we did this because we felt

organization-level reporting is inherently flawed. It is inherently flawed when, in particular, multi-year reporting (and comparisons) are being done, because the boundaries and size of an organization rarely stand still from one year to the next (e.g., Wal-Mart's headcount in the U.S. rose by 100,000 employees from 2003 to 2004). Per capita level reporting, by contrast, offers a means of resolving such disparities, insofar as it makes meaningful inter-annual organizational comparisons possible by resorting to a common denominator. In the Ben & Jerry's case to follow, we will provide an example of where both organizational and per capita reporting was done, and the kinds of statistical distortions that can occur at the organizational level of analysis.

Regarding report format, the spreadsheet shown in Table 5.1a and 5.1b is entirely consistent with the general formatting and content guidelines specified in Chapter 4. Moreover, every decision made, or outcome produced, as a consequence of the Steps discussed above are reflected in that spreadsheet.

5.2.3 Discussion of results

The intent of the Wal-Mart case was:

1. to show that the SFM is a viable method, and that the social sustainability performance of an organization can be measured and reported in a meaningful, quantitative way;
2. that such analyses can be performed independently, without direct involvement from the organizations under study;
3. that normative propositions can be used as standards of sustainability performance, even in the absence of consensus or certainty about them;
4. that the People Foot metric is a useful means of resolving the disparities that can arise when attempting to do organizational sustainability performance comparisons across multiple years; and
5. that social sustainability analyses can be performed on narrow areas of impact (i.e., the MDGs) without having to consider social sustainability impacts in all other areas.

Given these goals of demonstrating how the SFM can work, we think the results were largely, if not completely, positive.

5.3 BEN & JERRY'S HOMEMADE, INC.

Ben & Jerry's Homemade, Inc. (B&J) is a well-known ice cream and frozen yogurt maker with a long and well-publicized history of philanthropy and social activism. The company was started 1978 by Ben Cohen and Jerry Greenfield in a renovated gas station in downtown Burlington, Vermont, and is now headquartered in nearby South Burlington. By 1999, the company's revenues had grown to more than $237 million.

In 2000, B&J accepted an offer by the Anglo/Dutch company, Unilever, to purchase the business for $326 million. Under the terms of the agreement, Ben & Jerry's would operate as a wholly-owned subsidiary of Unilever, with an independent Board of Directors who would provide leadership and continuity for the company's social mission and brand integrity. That structure has stood the test of time, and by the end of 2006, the company had grown to more than 500 people in the U.S. alone.

In 2007, B&J published its eighteenth consecutive annual *social and environmental assessment report* (SEAR) covering performance for the year 2006. Few, if any, companies have been measuring and reporting their social and environmental performance for as long as B&J has. As the company's CEO, Walt Freese, puts it, "This process creates time and space to look back at the path we've traveled each year and determine how to stay on course as a values-led business" (Ben & Jerry's, 2007a).

5.3.1 Introduction

In late 2006, news of the Social Footprint Method's existence had caught the attention of B&J's Social Mission Department (SMD), the group responsible for preparing the company's SEAR report each year, and for generally managing its social and environmental initiatives. The SMD group at Ben & Jerry's is mainly composed of its Director, Rob Michalak, and two key analysts, Andy Barker and Andrea Asch. We were then invited to meet with the SMD team, and to give a brief presentation on the SFM and the theory behind it. What followed was an agreement to pilot the method at B&J's, with the intent of testing and evaluating the concept.

Like many companies, B&J had become increasingly suspicious of top-line-only measurement approaches that perhaps do a good job of tracking social and environmental impacts in terms of trends, but generally fail to measure such impacts against standards of any kind. In other words, what the Social Mission team at B&J was interested in evaluating was the notion of *hard*, versus *soft*, sustainability theory and practice (see Section 3.2.3) - a way of measuring sustainability performance in a more literal, bottom-line sense, where *standards of performance*, not just performance, are involved. This is the story of that evaluation.

5.3.2 Discussion of SFM steps taken

As in the previous case (Wal-Mart), this illustration of the Social Footprint Method at B&J follows the five steps outlined in Chapter 4.

5.3.2.1 Step 1: Define boundaries

Included in the scope of this case was B&J's headquarters operations in South Burlington, Vermont, and its main production facilities in Waterbury, Vermont and St. Albans, Vermont. This accounted for the vast majority of the company's operations.

In terms of temporal boundaries, all data was compiled on an annual basis. The range of years examined was from 2000 through 2006. This particular range of years was determined by the content of the denominator chosen in Step 3 below, which specified standards of performance for those years.

5.3.2.2 Step 2: Select specific area(s) of impact (AOIs)

In this case, an AOI was selected that would serve B&J's primary purpose of wanting to pilot the SFM for possible broader use at the company. The goal was to obtain some first-hand experience with the method, learn how to use it, and determine what issues, or difficulties, if any, might attach to the method. Since, at

the time, we had just completed a prototype of the method involving climate change mitigation, we proposed that the same application be used as a basis for the initial pilot at B&J; the Social Mission team there agreed.

The fact that we chose an AOI that was so obviously tied to an ecological issue prompted then, as it does now, a question about the case: Isn't the Ben & Jerry's case an example of an *Ecological Footprint* analysis, and not a *Social Footprint?* Apart from the fact that we were not proposing to do an Ecological Footprint study in the mold of Wackernagel and Rees (1996), and that for that reason alone the answer to this question would be No, it was No for another more important reason, as well.

In Chapter 3, we defined social footprints, and differentiated them from their ecological counterparts, by distinguishing between societal and ecological quotients in general (see Sections 3.5.3.2 and 3.5.3.3). Here we reaffirm the distinctions we made there, and point out that in order for a sustainability measure to be of an ecological kind, the denominator of the related quotient must specify an ecological standard of performance, not a human, social, or constructed one. Furthermore, we said that an ecological quotient must specify in its denominator some quantity of natural capital that must not be exceeded, which, in turn, is tied to actual ecological thresholds in the world.

Climate change (i.e., global warming) clearly involves a form of natural capital that is being affected by human activity. The particular form of natural capital involved is the capacity of the earth's environment to assimilate greenhouse gases generated by human activity. When we exceed the capacity of the carbon cycle, for example, to assimilate our CO_2 emissions, we can say that the activities responsible for those emissions are unsustainable. By this standard of performance, the verdict is already in - human activities responsible for producing current levels of greenhouse gas emissions are, by definition, unsustainable, since their volumes (of emissions) now greatly exceed the assimilative capacity of the earth to absorb them, and the earth's climate is heating up as a result.

What, then, is humanity to do? In very general terms, what humanity must do is take collective action of some kind to address the problem of climate change. In a sense, then, the nature of the problem here, being an ecological one, is not the point. The point is we have a condition on earth that is undermining human well-being, and collective action of some kind is required to address it. That is

precisely the general pattern that gives rise to Social Footprint applications, since the issue to be addressed is whether or not humans are enabling collective action, by creating and/or maintaining whatever levels of anthro capital may be required to take it.

In the case of global warming, what must ultimately be done, of course, is to lower greenhouse gas emissions. But in order to do that, we must:

1. first develop the knowledge of how to do so (i.e., create some human capital consisting of such knowledge),
2. organize networks of individuals committed to addressing the problem (i.e., create some social capital consisting of knowledgeable individuals committed to working together to address the problem), and
3. create some new sources of energy that are renewable and non-polluting (i.e., create some constructed capital that can replace today's aging, and polluting, power plants).

Once such anthro capital has been produced, it can then be appropriated and brought into service, so to speak, as a resource for taking action by people who need it; such action to consist of lowering greenhouse gas emissions.

What the explanation above envisions, therefore, is a two-step process. First we must create the anthro capital required to take (hopefully) effective action, and then we must take action, with such capital in hand, to, in this case, lower our greenhouse gas emissions and thereby modify our impacts on natural capital. Normally, from a measurement and reporting standpoint, we would do these things in two sequential steps. First we would take a Social Footprint measurement to determine the sustainability of our impacts on the required anthro capital, and then we would separately take an ecological-footprint-type measurement to assess the quality of whatever actions we subsequently took. It should be clear, however, that it is not until the quality or success of actions taken using anthro capital is assessed that we can determine whether or not our investments in building anthro capital were effective. Until then, our estimate of anthro capital resources required to take (hopefully) effective action is a guess, conceived in light of our causal theory (discussed below).

In the B&J case, we had an opportunity to short-cut this process, by utilizing the quality or success of actions taken as a *proxy* for determining the sufficiency of investments made in anthro capital. What made this possible was simply the fact

that investments made by B&J in building anthro capital for climate change mitigation were being instantly appropriated and put into action by B&J themselves, in the form of adjusting their carbon dioxide emissions. In order to take such actions, investments were required to:

1. help people learn how to lower carbon dioxide emissions while maintaining normal levels of business operations,
2. create and commit team resources for implementing mitigation programs, and
3. build new energy production systems (i.e., power plants) that would not run on fossil fuels.

In other words, human, social, and constructed capital would have to be created.

And since the production and/or allocation of such anthro capital resources was being accompanied by their immediate appropriation and use towards lowering CO_2 emissions at B&J, measurable levels of such reductions could be used as a proxy for determining the sufficiency (i.e., sustainability) of related investments. We reasoned that if reductions in carbon emissions met expectations or standards of performance for reversing climate change, we could assume that the underlying investments simultaneously being made in anthro capital were sufficient (or sustainable). If reductions in emissions did not meet our expectations, we could assume the reverse, and that further investments were required. Of course, it is also true that other factors could have been responsible for the changes we observed, but for purposes of this case, we assumed otherwise. Here we can see the important role that causal theories play in our thinking (see Section 4.6.1.3.2), the content of which must be carefully specified, tested, and evaluated.

Thus, this is a case where several (i.e., four) AOIs, not one, were selected for analysis, and where an ecological metric was used as a proxy for measuring impacts on all four in a consolidated way. The four AOIs selected were (see Section 4.6.1.2.1):

1. Internal Human Capital - Safety and Security: Local, National, Global;
2. Internal Social Capital - Safety and Security: Local, National, Global;
3. Internal Constructed Capital - Infrastructure: Power;
4. External Constructed Capital - Infrastructure: Power .

The first AOI consisted of internal individual knowledge and skills about how to lower carbon emissions while maintaining required levels of business operations;

the second AOI consisted of internal shared knowledge and networks required to implement climate change mitigation programs; and the third and fourth AOIs consisted of internal and external technologies required to produce and use energy without using fossil fuels, or to use fossil-fuel based systems more efficiently. Actual and normative levels of carbon emissions were used as a proxy for all four AOIs in this case, but only as surrogate measures of real anthro capital. Since that is the inviolate criterion for when and how proxy measures may be used in Social Footprint quotients (i.e., they must actually stand for anthro capital), this was clearly a case of assessing the social sustainability performance of B&J, and not its ecological performance.

Lest there still be any doubt about this, it is perhaps worth pointing out that if we had done a true ecological-type footprint of B&J's carbon emissions, we would have had to measure such emissions against an ecological constraint, such as the assimilative capacity of the environment (a normative measure of natural capital), and not against emission reduction targets required to mitigate climate change (a measure of human behavior). The former is a constraint imposed by the biophysical properties of natural capital; the latter is a normative state of affairs arising from a social contract or norm. Indeed, if we had done a true ecological-type footprint of B&J's emissions, the result would have almost certainly been negative (i.e., unsustainable), since all carbon emissions on earth clearly exceed the biophysical capacity of the environment to absorb them at present rates. When measured against social standards of (anthro capital) performance, however, many of the same emissions can be interpreted as sustainable because they conform to social norms (e.g., as prescribed by a treaty, perhaps). Thus, we can have emissions behaviors that are ecologically unsustainable and socially sustainable at the same time. In the former case, ecological metrics are being used in a literal sense, with measurements being taken against constraints in natural capital; in the latter case, ecological metrics are being used in a surrogate, or proxy, sense, with measurements being taken against norms or duties to create and/or maintain anthro capital.

5.3.2.3 Step 3: Specify and construct denominator

In Section 4.6.1.3.7 (Summary of Step 3), we decomposed Step 3 into eight Substeps. Here again, we will adhere to that outline as we describe the process we followed in specifying B&J's denominator.

Substep 3.1: This Substep required us to establish a causal theory for the AOIs selected in Step 2. In general, all four AOIs identified above are vital for human well-being, insofar as they help to ensure the security of human habitat (i.e., by contributing to a safe, healthy, and comfortable climate on earth). Furthermore, the last two, the infrastructure AOIs, also help to ensure the security and sufficiency of our energy supplies. Mostly, though, this case was about mitigating climate change, and the investments in anthro capital required to take related action, as discussed above.

The causal theory we relied on to determine just how much, and what kind, of investments in anthro capital would be required to normatively mitigate climate change was provided by a group of scientists known as Wigley, Richels, and Edmunds (WRE) (Wigley et al, 1996; Wigley and Schimel, 2000). Tom Wigley, in particular, a climatologist at the National Center for Atmospheric Research (NCAR) in Boulder, Colorado, worked directly with us to review our use of his work and to provide scientific support as needed. Our work with Tom included a visit to meet with him at NCAR in March, 2007.

It was our choice of the theory developed by WRE that drove our decision to use carbon emissions as a proxy measure for investments in anthro capital. This is because the normative implications of the WRE theory are expressed in terms of changes in carbon emissions that must be achieved if humans are to reverse climate change, and restore conditions to safe and normal levels. WRE, in turn, developed their theory in response to a declaration found in the United Nations Framework Convention on Climate Change (UNFCCC), adopted in March, 1994, which read as follows (UNFCCC, 1994, Article 2):

> "The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate

> system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

Solving the global warming problem, therefore, translates into a need to stabilize and restore greenhouse gas concentrations in the atmosphere to safe levels. This, according to the WRE theory, can be accomplished, in part, by managing global carbon emission levels in such a way as to initially allow them to rise - more or less according to their current trajectory during an early transition period - followed by a concerted effort to steadily lower them over time in a deliberate and prescribed way. Given the nature of the carbon cycle on earth as scientists understand it (see, for example, Wigley and Schimel, 2000), the impact of such emissions adjustments can be predicted in terms of what the expected effects on greenhouse gas concentrations in the atmosphere will be. Specific concentration targets can therefore be targeted and, in theory, achieved.

WRE did not, however, specify the actual manner in which reductions should take place at a policy or implementation level, and instead confined themselves to the proposition that:

1. such reductions must happen if safe atmospheric concentrations are to be achieved, and
2. they should happen according to a specific pattern of emissions (i.e., expressed in terms of allowable volumes of emissions per year) as prescribed by their theory.

Ben & Jerry's, however, added to the WRE theory by declaring the manner in which it, for its own part, would actually manage and lower its emissions. In their SEAR 2006 report, the Social Mission team explained its thinking as follows (Ben & Jerry's, 2007b):

> "We have been working to reduce the global warming-causing greenhouse gas emissions that result from making Ben & Jerry's ice cream for several years. Our efforts have included improving efficiencies, investigating the practicality of renewable energy, and offsetting all of the carbon emissions from our manufacturing operations."

These steps, in turn, translated into a need to build and maintain anthro capital in the four areas of impact (AOIs) identified above, the proxy for which is (or can be) *actual and normative changes in carbon emissions.*

Thus, the causal theory at work in this case asserts that in order to mitigate climate change and solve the global warming problem:

1. greenhouse gas concentrations in the atmosphere must be lowered to safe levels,
2. this can be achieved by reducing carbon emissions to prescribed levels in accordance with an understanding of the carbon cycle and other factors, and
3. reducing carbon emissions as a byproduct of human activity can, in turn, be accomplished in three ways:
   - by improving efficiency in energy use,
   - switching from fossil-fuel-based energy to renewable alternatives, and
   - utilizing offsets.

The implications of this theory are further discussed below.

Substep 3.2: The next Substep in Step 3 of the SFM required that we determine the anthro capital aspects, or components, of the causal variables identified in Substep 3.1, which in turn can be used as a basis for specifying denominator (and numerator) values. This we have already done, and explained, in our presentation of the causal theory above.

First, we identified the one causal variable required to restore greenhouse gas emissions to safe levels (i.e., carbon emissions, which must be lowered according to WRE-prescribed levels). Next, we identified the kinds of actions required to have impact on the same causal variable; there were three of them:

1. improve energy efficiency,
2. switch from fossil-fuel-based energy to renewable alternatives, and
3. utilize offsets.

These actions, in turn, require the production and/or maintenance of anthro capital in four forms:

1. Internal Human Capital - Safety and Security: Local, National, Global;
2. Internal Social Capital - Safety and Security: Local, National, Global;
3. Internal Constructed Capital - Infrastructure: Power;

4. External Constructed Capital - Infrastructure: Power.

By creating and maintaining these forms of anthro capital in sufficient quality and supply, the three kinds of action required to have impact on the causal variable of interest to us (i.e., carbon emissions) could be taken.

Substep 3.3: This Substep required that we research, select, and/or develop the metrics required to quantitatively express the denominator (and numerator) for the AOIs selected in Step 2, and for the anthro capital components identified in Substep 3.2. Since we decided to use a proxy in this case consisting of carbon emissions, all of the values expressed in B&J's denominators (and numerators) were formulated in the manner in which such things are customarily measured and reported by scientists in related fields (i.e., in metric tonnes per year, or tC/yr). Given the enormous volumes involved for some of our variables, we sometimes also expressed emissions in terms of giga-tonnes of carbon per year, or GtC/yr (see Table 5.2a).

Substep 3.4: This Substep required that in cases where a proxy unit of measurement, or metric, is to be used in the denominator, we verify that it actually stands for contributions that would otherwise take the form of real units of anthro capital. Since we did use carbon emissions as a proxy for anthro capital here, this requirement applied. Our means of verification here was analytical and argumentative. We simply postulated that the emissions behaviors at B&J, as recorded in the years we evaluated, were, in fact, attributable to actions taken of the three types described above, and that the same actions, in turn, were attributable to investments made in the four types of anthro capital we identified, and that made them (the actions taken), therefore, possible.

Indeed, all advances made in energy efficiency and/or the use of renewable energy at B&J were realized as a result of direct investments made at the individual (human capital) and group (social capital) levels in order to learn how to obtain them, as was the allocation of related human and group resources (i.e., individuals and teams) towards the same ends. Carbon offsets, as well, which in this case took the form of donations aimed at the construction of new, renewable energy power plants, constituted direct monetary investments towards the construction of new (external) constructed capital. Some degree of internal constructed capital was also created in order to fully implement the efficiency and renewable energy solutions mentioned above. To the extent that all of these investments in anthro

capital were arguably responsible for any changes in carbon emissions at B&J in the years we studied, such changes in emissions, we felt, could be interpreted as wholly indicative of the level and sufficiency of the investments made to achieve the intended outcomes.

Substep 3.5: This Substep required us to determine whether or not the responsibility for impacts on the AOI selected in Step 2 rested solely with the organization under study, or instead encompassed a broader human population. If the latter, it might be necessary to calculate the size of the organization in terms of our *People Foot* metric, especially when computing Social Footprints for the organization as a whole; if the former, we would need to allocate the AOI's entire burden share to the organization in the denominator.

In this case, the AOIs we examined clearly entailed responsible populations that include B&J, but went well beyond the boundaries of the organization. The first two AOIs dealt directly with human safety and security at the global level of analysis (i.e., the health of the earth's climate) and the second two did as well (i.e., the quality and sufficiency of public utility systems for global energy). Recalling the logic of denominators set forth above in Substep 3.5 of the Wal-Mart case, it is important when attempting to allocate responsibility for achieving certain (i.e., external) AOI-related goals that the organizational population of interest to us lie completely within the responsible population we have identified. In this case, the responsible population is all humans on earth, and therefore Ben & Jerry's, and all other organizations, can be said to clearly lie within it.

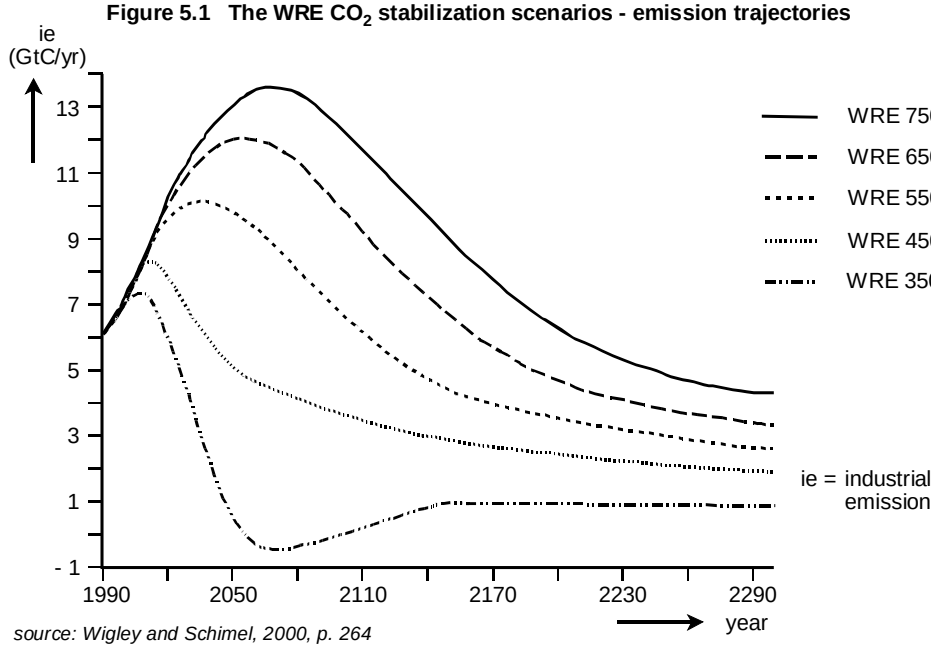
Insofar as whether People Foot calculations were required for denominators in the B&J case, the answer here is both *yes* and *no.* This is because, unlike in the Wal-Mart case, in the B&J case we set out to build more than one type of quotient; in fact, we set out to create four, as explained below:

1. ***An Organization-Wide Cumulative Quotient***
   The first quotient we set out to build was cast at an overall organizational level of analysis. In effect, the question it addressed was: *What was Ben & Jerry's cumulative corporate social sustainability performance in the years 2000-2006, relative to its impacts on climate change mitigation?*

   The denominator of this quotient - and the others to follow - was based on a variant of the WRE theory known as the WRE350 scenario. It is a

multi-year prescription of allowable carbon emissions on earth, which, if adhered to, will purportedly cause greenhouse gas concentrations in the atmosphere (CO_2, specifically) to descend to safe levels (see Figures 5.1 and 5.2). The resulting concentrations specified as a target are 350 parts per million of carbon dioxide, hence the WRE350 moniker. Since the WRE350 scenario specifies allowable carbon emissions for every year, starting in 2000 and ending in 2150, it can be interpreted as if it were a plan for climate change mitigation, consisting of normative, not-to-exceed emissions each year that can, in turn, be applied at both an organizational and per capita level of analysis. The actual emissions performance of a company (i.e., the numerator discussed below in Step 4) could therefore be evaluated against such standards, or norms, of performance. This first quotient, then, was an attempt to perform such an analysis on a cumulative basis (i.e., on an inception-to-date, rolling basis) for the B&J organization as a whole.

Figure 5.1 The WRE CO_2 stabilization scenarios - emission trajectories



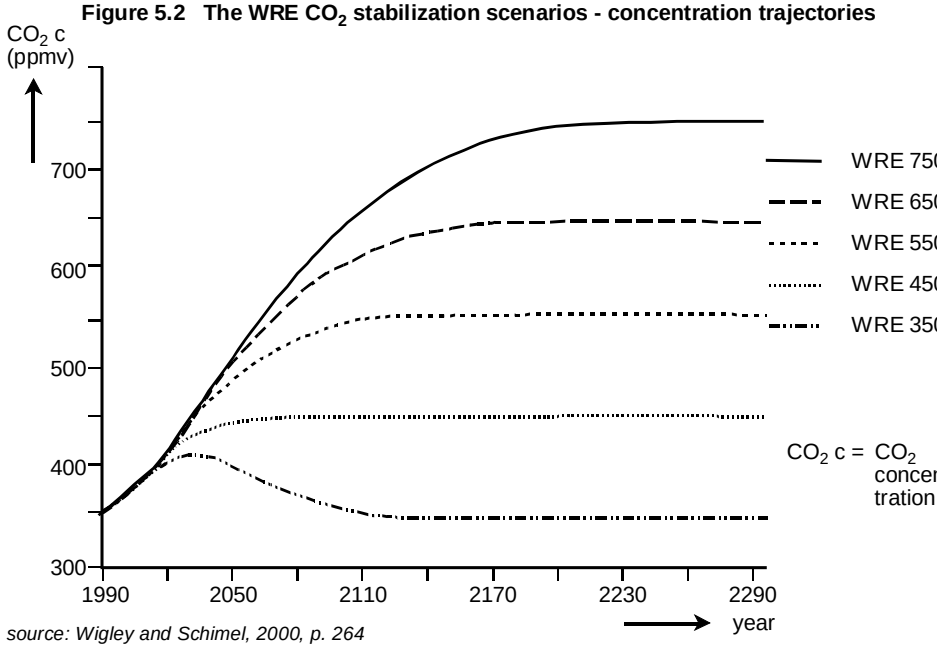
source: Wigley and Schimel, 2000, p. 264

Here, in B&J's own words, is an account of the decision they made to embrace the WRE350 scenario as the basis of a plan for constructing their own denominators (Ben & Jerry's, 2007b):

"[…]we haven't been able to answer one very important question about our company's response to global warming: Exactly *how much* should we be reducing our greenhouse gas emissions each year?

In 2006, Ben & Jerry's began a focused effort to answer this huge question. It's an important question because in order to successfully meet the challenge of global warming as a world community, we need a plan that will share the burden of reducing greenhouse gases in the atmosphere equitably among regions, nations, industries, and individuals.

Figure 5.2 The WRE CO_2 stabilization scenarios - concentration trajectories



source: Wigley and Schimel, 2000, p. 264

We don't have such a plan yet in the United States, where carbon dioxide, the most significant greenhouse gas, is not regulated by the federal government. (We're pushing Congress to fix that through our Lick Global Warming Campaign.)

> So we looked to a [model] that some of the best climate scientists in the world have proposed called the WRE350 [scenario]. It spells out annual limits on the amount of carbon (in the form of carbon dioxide) humans can emit globally over the next 150 years in order to stabilize the concentration of carbon dioxide in the atmosphere at a safe level of 350 parts per million. (A number of other proposed [scenario] aim for higher levels of atmospheric carbon dioxide, ranging from 450 to 750 parts per million. We chose the most aggressive [scenario], which we think represents the best response to global warming.)
>
> Then, in consultation with the Center for Sustainable Innovation, we used a new analytical technique, the Global Warming Social Footprint, to figure out what the WRE350 [scenario] meant for Ben & Jerry's. The purpose of the project was to identify an annual level of carbon emissions that our Company's manufacturing operations could emit (in the form of carbon dioxide) that would represent our proportionate share of the WRE350 [scenario]."

2. ***A Per capita Quotient***
   The second quotient we set out to build was cast in the form of a fairly standard per capita analysis. In effect, the question it addressed was: *What was Ben & Jerry's annual per capita social sustainability performance in the years 2000-2006, relative to its impacts on climate change mitigation?*

3. ***A Weighted Per capita Quotient***
   The third quotient we set out to build was cast in the form of a fairly standard, but weighted, per capita analysis. In effect, the question it addressed was: *What was Ben & Jerry's annual weighted per capita social sustainability performance in the years 2000-2006, relative to its impacts on climate change mitigation?* The decision to build a quotient of this kind was based on the fact that the standard of performance we were using measured performance cumulatively over time, as opposed to only cyclically on an annual basis. In other words, unlike an annual financial report, or an annual sustainability report such as the quotient calculations shown for each year in the Wal-Mart case, in the B&J case, we were, in

fact, looking at both annual and cumulative (i.e., multi-annual) performance over time.

In order to carry performance forward from one year to the next at a per capita level of analysis, then, we had to somehow take changes in B&J's workforce population into account. Had we not done so, the effects of any per capita surpluses or deficits experienced by its workforce in one year versus another would be unduly inherited on a going forward basis, simply because of natural changes in the company's size.[1] By addressing this issue, the cumulative per capita analysis (the fourth quotient described below) could be computed in a way that would avoid the unwanted inter-annual inheritance problem. Moreover, by doing the same for numerators each year (discussed below in Step 4), the results of this quotient would be the same as if we hadn't added the weighting factors at all (i.e., the same as the results received for the second quotient). Thus, it preserved the annual per capita performance we were in interested in seeing, while at the same time laying a better foundation for the fourth, and cumulative, per capita quotient calculation to follow.

4. ***A Cumulative Weighted Per Capita Quotient***
   The fourth quotient we set out to build was cast at a per capita level of analysis on a cumulative basis using the annual figures developed in the third quotient described above. In effect, the question it addressed was: *What was Ben & Jerry's cumulative weighted per capita social sustainability performance in the years 2000-2006, relative to its impacts on climate change mitigation?*

All four quotients described above, and the underlying calculations for each, are shown in the spreadsheet contained in Tables 5.2a, 5.2b, and 5.2c. The bottom-line results for each quotient are highlighted therein, and are arranged in the same order as above, from top to bottom, respectively. We will have more to say about the results shown in our discussion of Step 5 below.

[1] The solution chosen, with input from Professor Hollister of Dartmouth College's Sociology Department, was to simply weight the annual per capita denominators by the actual employee headcount in place at B&J each year.

To come back to the question of whether People Foot calculations were required for denominators in the B&J case, the answer is that they were not in the case of the first quotient, but were in the case of the second, third, and fourth quotients. This is because the first quotient was cast at an organizational level of analysis, not a per capita one; and despite the fact that we said earlier (in the Wal-Mart case), that People Foot calculations for denominators are usually required for organization-level analyses and not for per capita ones, this is a case where the opposite was true, thanks to the nature of the standard we used for measuring performance. That standard essentially grandfathered carbon emissions, at whatever level they happened to be in 2000, as a baseline for the cumulative analysis of performance on a going-forward basis. Thus, in order to perform the B&J analysis in terms of the WRE350 scenario, it didn't matter what B&J's headcount was in 2000 or any other year of our study. All we needed to do was determine what its baseline carbon emissions were in 2000, and what the allowable changes were for each year thereafter, as dictated by the global prescriptions contained in the WRE350 scenario (again, see Table 5.2a). As it turns out, B&J's carbon emissions in 2000 were 1,228 metric tonnes as shown in Table 5.2a.

As for the three per capita quotients featured in this case, People Foot calculations were required in all instances, again because of the special nature of the standard of performance we used. Instead of allocating burden shares on a per capita basis using global population as a starting point (i.e., as we did in the Wal-Mart case), the per capita standard of performance in this case was determined by only B&J's population in the baseline year (i.e., 2000). Thus, in order to determine the allowable per capita emissions in any year of our analysis, we had to first determine what the per capita emissions were in 2000. In order to do that, we had to perform a People Foot calculation, because as we said before, people only spend part of their lives at work. Once we had performed this calculation which revealed per capita/People Foot emissions of 7.02 metric tones of carbon at B&J - we were then able to project annual allowable per capita/People Foot emissions at B&J using the more general pattern of allowable (global) carbon emissions prescribed by the WRE350 scenario.

Before moving on to Substep 3.6, we have one other lesson learned to discuss here. Initially, when we computed the allowable per-People-Foot (i.e., per capita) figures as a basis for the denominators in the second, third, and fourth quotients as discussed above, we based that calculation, as we explained, on year 2000 data per the dictates of the WRE350 scenario and its use of year 2000 data as a base-

Table 5.2a Ben & Jerry's global warming social footprint analysis

	2000	2001	2002	2003	2004	2005	2006
background information for Ben & Jerry's							
reference figure: B&J full-time employees	723	756	819	498	522	505	514
B&J total number of people feet[1]	175	181	196	138	127	129	127
global population (billions)	6.073	6.149	6.224	6.299	6.375	6.451	6.528
global population indexed to 2000 baseline	1.000	1.0125	1.0249	1.0372	1.0497	1.0622	1.0749
carbon emissions required to stabilize CO_2 at 350 ppm: the denominator							
maximum annual global emissions allowed under WRE 350 scenario (GtC/yr)[2]	6.896	6.930	6.964	6.999	7.033	7.067	7.018
maximum cumulative global carbon emissions allowed under WRE 350 scenario (GtC)		6.930	13.895	20.893	27.926	34.993	42.011
allowable annual carbon emissions indexed to 2000 baseline of WRE 350 scenario[2]	1.0000	1.0050	1.0099	1.0149	1.0198	1.0248	1.0177
annual carbon emissions allowed at B&J under 350 ppm scenario (1,228 tC/yr in 2000)[3]	1,228	1,234	1,240	1,246	1,252	1,258	1,250
cumulative carbon emissions allowed at B&J under 350 ppm stabilization scenario (tC): the denominator$_a$		1,234	2,474	3,721	4,973	6,231	7,481
annual carbon emissions allowed per capita/people foot at B&J under 350 ppm scenario based on 2000 baseline of 7.02 tC/yr/people foot reduced for global population growth	7.02	6.96	6.91	6.87	6.82	6.77	6.64
cumulative carbon emissions allowed per capita/people foot at B&J Under 350 ppm scenario (tC): the denominator$_c$		6.96	13.88	20.75	27.56	34.33	40.98

[1] people feet are an alternative measure of headcount. See www.sustainableinnovation.org
[2] source: MAGICC/SCENGEN emissions library at http://www.cgd.ucar.edu/cas/wigley/magicc
[3] base year 2000 estimated from 1996/97 and 2001-2005 data provided in B&J's Social and Environmental Report 2005

Table 5.2b Ben & Jerry's global warming social footprint analysis

	2000	2001	2002	2003	2004	2005	2006
actual net carbon emissions at B&J's: the numerator							
actual annual carbon emissions at B&J's (tC/yr)[4]	1,228	1,292	1,258	1,136	1,278	1,442	1,279
actual carbon offsets purchased - current year accounting (tC/yr)	0	0	0	84	114	816	392
net Annual carbon emissions at B&J's after carbon offsets subtracted (tC/yr)	1,228	1,292	1,258	1,052	1,164	626	887
net cumulative carbon emissions at B&J's (tC): the numerator$_a$		1,292	2,550	3,602	4,766	5,392	6,279
net annual carbon emissions per capita/people foot at B&J's (tC/yr): the numerator$_b$	7.02	7.14	6.42	7.62	9.17	4.85	6.98
net cumulative carbon emissions at B&J's per capita/people foot (tC): the numerator$_c$		7.14	13.56	21.18	30.35	35.20	42.18
B&J's global warming social footprint (CO_2 stabilization-related only)							
actual cumulative carbon emissions at B&J's (tC): the numerator$_a$		1,292	2,550	3,602	4,766	5,392	6,279
cumulative carbon emissions allowed at B&J's under 350 ppm stabilization scenario (tC): the denominator$_a$		1,234	2,474	3,721	4,973	6,231	7,481
global warming societal quotient 'a' expressed in terms of organization-wide cumulative emissions perspective[5]		**1.047**	**1.031**	**0.968**	**0.958**	**0.865**	**0.839**
actual annual carbon emissions per capita/people foot at B&J's (tC/yr): the numerator$_b$		7.14	6.42	7.62	9.17	4.85	6.98
annual carbon emissions allowed per capita/people foot under 350 ppm scenario (tC/yr): the denominator$_b$		6.96	6.91	6.87	6.82	6.77	6.64
global warming societal quotient 'b' expressed in terms of annual per capita/people foot perspective[5]		**1.025**	**0.928**	**1.110**	**1.344**	**0.717**	**1.051**

[4] source: B&J Social and Environmental Report 2005

[5] **≤1 = sustainable; >1 = unsustainable; computed as: numerator/denominator**

Table 5.2c Ben & Jerry's global warming social footprint analysis

	2000	2001	2002	2003	2004	2005	2006
B&J's global warming social footprint (CO_2 stabilization-related only) - continued							
actual annual carbon emissions (weighted) at B&J's (tC/yr): the $numerator_{bw}$	1,228	1,292	1,258	1,052	1,164	626	887
annual carbon emissions allowed (weighted) under 350 ppm scenario (tC/yr): the $denominator_{bw}$	1,228	1,261	1,355	948	866	873	844
global warming societal quotient 'bw' expressed in terms of annual per capita/people foot perspective[5]		**1.025**	**0.928**	**1.110**	**1.344**	**0.717**	**1.051**
actual cumulative carbon emissions at B&J's, weighted (tC): the $numerator_{c}$		1,292	2,550	3,602	4,766	5,392	6,279
cumulative carbon emissions allowed under WRE 350 scenario, weighted (tC/yr): the denominator		1,261	2,616	3,563	4,429	5,303	6,146
global warming societal quotient expressed in cumulative per capita/people foot		**1.025**	**0.975**	**1.011**	**1.076**	**1.017**	**1.022**

[4] source: B&J's Social and Environmental Report 2005

[5] **≤1 = sustainable; >1 = unsustainable; computed as: numerator/denominator**

line. Implicit in that baseline, however, was the global population of humans on earth at the time. When we performed our People Foot calculation for B&J in 2000, we were implicitly, therefore, computing the number of People Feet in the company against the then-current global population as the baseline scenario.

Since the earth's population has increased in the subsequent years, it is important to adjust B&J's allowable emissions in the same years (i.e., which were computed as a function of their baseline year 2000 performance) by a factor which takes these changes in global population into account.

In other words, if no changes in the earth's population had taken place in years 2001-2006, no adjustments in B&J's allowable overall or per capita/People Foot emissions as a function of the baseline year per WRE350 would be needed. But since the global population, in fact, grew in each of those years, B&J's allowable overall and per capita/People Foot emissions needed to be adjusted downward by the proportionate amounts, so as to reflect the fact that there were more people on earth each year, among whom *burden shares* for mitigating climate change as dictated by the WRE350 scenario must be assigned. The final figures we used for allowable annual carbon emissions at B&J, at both an organizational and a per capita/People Foot level of analysis, as shown in Table 5.2a, were adjusted, accordingly.[1]

Substep 3.6: This Substep required us to form competing knowledge claims as to what the organization's proportionate burden share should be in order to create and/or maintain sufficient levels of anthro capital (i.e., as required to ensure human well-being in the AOI of interest). We should have then selected the knowledge claim that best survived testing and evaluation through knowledge claim evaluation.

Here we largely deferred to the content of the causal theory we relied on in this case, the WRE350 scenario. Since that theory essentially grandfathers actual levels of carbon emissions on earth in year 2000 - wherever they may have been, and whoever may have produced them - and then specifies allowable emissions on a going-forward basis as a function of that baseline, it was easy to assign a

[1] Again, this insight was gained with input from Professor Hollister of Dartmouth College.

burden share to B&J for what it will take to return greenhouse gas concentrations to safe levels. We simply followed the scenario (again, see Table 5.2a).

For any given year, B&J's burden share, like any other organization's, is determined by the WRE350 scenario - it is its actual year 2000 emissions multiplied by the general level of allowable increases and/or required reductions specified in the scenario's prescriptions. Assuming all baseline emissions are, in fact, retained by their year 2000 sources, and not reassigned to other parties for any reason, the assignment of burden shares amongst the earth's inhabitants for any year after 2000 can easily be made by simply referring to the WRE350 scenario. This is what we did at B&J. First we determined what its baseline year 2000 emissions were, and then we referred to the WRE350 scenario to determine what the company's burden shares should be for each subsequent year, given the scenario's directives as to how much higher or lower emissions should be relative to the baseline year.

As in the case of Wal-Mart, we made no attempt at B&J to moderate or adjust burden shares on a per capita basis according to economic status, maturity, health, age, or any other discriminating variable amongst the members of a population. This was done for the sake of simplicity.

Substep 3.7: This Substep required us to finally populate the denominator with a quantitative value in accordance with decisions reached in Substeps 3.1 - 3.6. As shown in Tables 5.2b and 5.2c, and as explained above, there were actually four quotients with four separate sets of denominators in this case. Each such set of denominators (i.e., laid out in a multi-year fashion) is shown in conjunction with the four corresponding sets of quotient scores produced in this case, which are highlighted in bold in Tables 5.2b and 5.2c.

Substep 3.8: The last Substep in Step 3 required us to determine which of the two types of binary performance scales should be used for plotting and interpreting the results of the quotient calculations. As we pointed out in Chapter 4, this will logically follow from the nature of the denominator chosen for use in the analysis. This is because in some cases the denominator represents a maximum, or not-to-exceed, expectation, whereas in others it represents a minimum, or not-to-fall-below, expectation (again, see Sections 3.5.3.2 and 3.5.3.3, respectively).

Whereas in most social sustainability cases, such as the Wal-Mart case, scores of greater than or equal to one (≥ 1.0) will signify sustainable performance (because it means that an organization is meeting or exceeding a *minimum* expectation to help build and/or maintain anthro capital), the opposite was true in the B&J case. This is because we happened to be using a proxy that specifies normative compliance in terms of *not exceeding maximums* (i.e., not emitting any more carbon than the WRE350 scenario allows). Thus, the binary scale we chose in the B&J case is one normally associated with ecological quotients, whereby only scores of less than or equal to one (≤ 1.0) signify sustainable behavior, and any score of greater than one (>1.0) signifies unsustainable behavior.

5.3.2.4 Step 4: Specify and construct numerator

Step 4: Step 4 required us to measure B&J's actual impacts on helping to build and/or maintain anthro capital in the AOIs we examined, and to then populate the numerators of the sustainability quotients we built with the resulting data. Once again, there were four such quotients, and the units of measurement we used consisted of carbon emissions (i.e., a proxy measure). Each such set of numerators, laid out in a multi-year fashion, is shown in conjunction with the four corresponding sets of quotient scores produced in this case, which are highlighted in bold in Tables 5.2b and 5.2c.

As in the case of denominators, People Foot calculations were required for the numerators of the second, third, and fourth quotients, but not the first. This is because the first quotient was cast at an organizational level of analysis, while the other three were all per capita measures. The same logic previously used for denominators therefore also applied to numerators, insofar as where and why People Foot calculations were made. Once normative behavior had been expressed in per capita terms in denominators, numerators were necessarily required to follow suit.

The data shown in the numerators of B&J's quotients reflect the results of the company's efforts in all three programs, or initiatives, earlier identified as constituting areas of investments made in anthro capital (i.e., improvements in efficiency, opportunities to use renewable energy, and investments in carbon offsets). The third initiative, in particular, had a major impact on B&J's actual emis-

sions, as can been seen from the data contained in Table 5.2b. There, in the *Numerator* section of the Table, it can be seen that offsets came into play starting in 2003, and played a decisive role ever since. In the case of B&J, all such investments in offsets took the form of contributions to a company called Native Energy, whose use of the money received from B&J was confined to construction of new wind-power energy plants. As a matter of policy at B&J, none of its contributions to Native Energy were to be used for the operating expenses of such plants, only new capital construction. Here we can see a very vivid and literal case of how B&J's actions went towards the creation of new anthro (i.e., constructed) capital.

5.3.2.5 Step 5: Compute the quotient score

Step 5: The final Step in the SFM required us to simply compute the quotient scores for B&J using the denominator values we produced in Step 3 and the numerator values we produced in Step 4, for all four quotients developed. The resulting scores are shown in the bold text in Tables 5.2b and 5.2c, with the first one corresponding to the cumulative organizational view, and the other three consisting of the per capita/People Foot analyses. All actual scores received are further discussed in the next section below.

In terms of intended audience, the report we prepared for B&J was designed both for internal management purposes, and also for external reporting to stakeholders. Indeed, many important results from the analysis were included in B&J's online SEAR 2006 report, in addition to being used for internal planning purposes. Insofar as the latter is concerned, here's what the company had to say about that in its report (Ben & Jerry's, 2007b):

> "In 2007, we'll take what we've learned from this Global Warming Social Footprint and use it in developing a specific climate change plan."

In terms of content, four separate quotients were developed as explained above. In so doing, our intent was to rely mainly on the per capita quotients, since the company-level analysis (i.e., the first quotient) was expected to mask any differences in organizational size or scope that would have occurred from one year

to the next. Indeed, as the data shows in Table 5.2a, the company's size did fluctuate dramatically during the years we studied, ranging from a high of 819 employees in 2002, to a low of 505 employees in 2005.

In terms of format, the B&J report shown in Tables 5.2a, 5.2b, and 5.2c was otherwise consistent in every way with the guidelines for SFM reporting contained in Chapter 4.

5.3.3 Discussion of results

Let us now turn our attention to the resulting scores in all four quotients computed in this case by focusing on the bolded results contained in Tables 5.2b and 5.2c. Reading from top to bottom, we can see that the scores achieved for the first quotient (i.e., the company-wide, or organizational, view) gradually improved from unsustainable in years 2001 and 2002, to sustainable in years 2003-2006. Indeed, the company-wide scores improved every year, with 2006 being the best year for that series (i.e., a score of 0.839).

As noted above, however, B&J's size varied dramatically in the years we studied. Thus, no two years were alike in terms of company size and scope, and so the scores received in the years we examined were arguably incomparable. In order to address this issue, we turned to the development of per capita/People Foot quotients, both for individual years in isolation and for cumulative scoring.

The first and second per capita/People Foot quotients we developed (i.e., the second and third bolded ones in Tables 5.2b and 5.2c) yielded the same scores, since the third one was merely the same as the second one, albeit with employee headcounts being used in both the numerators and denominators to weight the variables. As explained earlier above in our discussion of Substep 3.5, we did this in the case of the third quotient in order to prevent the unwanted inheritance of surpluses and deficits that might arise, as data associated with different employee headcounts in different years are combined in the fourth quotient. In any case, we can see from the year-by-year analysis of per capita/People Foot performance that B&J was socially sustainable, in terms of the AOIs we examined, in only two of the years we studied: 2002 and 2005. On the other hand, most other years, except for 2004, were only marginally unsustainable.

The fourth and last set of quotient scores shown in Table 5.2c is arguably the most important and valuable one, because it:

1. presents a per capita/People Foot view and in that way resolves inter-annual differences in company size,
2. is based on weighted annual data, accordingly, and
3. is cumulative in construction, and thereby better fits the underlying standard of performance, which is also cumulative in construction (i.e., the WRE350 scenario).

Indeed, according to the WRE350 scenario, a failure to comply with its dictates in one year can always be made up with an improvement in performance the next. It is the cumulative performance on a rolling basis over time, therefore, that matters most in interpreting a company's performance relative to the WRE350 scenario. Thus, the most important score is the most recent one.

With this in mind, we can see in the scores B&J received for the fourth quotient that for the most part, their performance for all six years studied was, strictly speaking, unsustainable, but only marginally so. Of most importance, perhaps, is the conflict revealed between the cumulative company-wide scores and the cumulative per capita/People Foot scores (i.e., between the first and fourth quotients). This we attribute to the inability of company-wide analyses to adjust or compensate for major swings in employee headcounts, which again is one reason why we favored the fourth, per capita/People Foot set of scores. It was the fourth quotient, therefore, that we felt provided the best and most meaningful view of B&J's true sustainability performance in this case.

On the whole, B&J's performance was quite good in the years we studied, thanks in large part, we think, to the quality and extent of the investments they made in carbon offsets. As long as the company continues to make such investments in these and other forms of climate-related anthro capital, it is very likely that they will more than meet the requirements of the WRE350 scenario, and ultimately go carbon neutral, or better, in the years ahead.

It should be clear from a review of the two cases above, we think, that the Social Footprint Method is not entirely free of issues, and that choices must be made regarding variables (and values) fundamental to its use. In the next chapter, we endeavor to acknowledge and discuss these issues in a more deliberate fashion, as well as to indicate where we think the method should go from here, in order to

become more fully operationalized and ready for prime-time use. We also attempt to summarize our answers to the research questions we raised in Chapter 1.